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<110> Gijzen, Mark

<120> Soybean Seed Coat Peroxidase Structural Gene And Regulatory Region

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<141> 1996-09-30

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cgtcaggctt cactttcatg actgttttgt tctgggatgt gatgcctcag ttttgctgaa 240

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gacggttcct ttaggaagaa gggatggttt aaccgcaaac cgaacacttg caaatcaaaa 480

tcttccggct ccattcaatt ccttggatca ccttaaactg catttgactg ctcaaggcct 540

cattactcct gttctagttg ccctctcggg tgctcataca tttggaagag ctcattgcgc 600

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cacaacttac ttacaacaac tgcgcacaat atgtcccaat ggtggacctg gcacaaacct 720

taccaatttc gatccaacga ctcctgataa atttgacaag aactattact ccaatcttca 780

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tgcaatgatt aaaatgggca atattggtgt gctaacaggg acaaaaggag agattagaaa 960

acaatgcaac tttgtgaact caaattctgc agaactagat ttagccacca tagcatccat 1020

agtagaatca ttagaggatg gaattgctag tgtaatataa ataaattagc gaaaatgcac 1080

ttattgaaat cttgtgacta gatcccacta ataaataagt tataactagg cacatttcat 1140

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<210> 14

<211> 1200

<212> DNA

<213> Medicago sativa

<400> 14

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ttcaatcgta cgtggtgtgc tcacaaatgt ttcacaatct gatcccagaa tgcttggtag 180

tctcatcagg ctacattttc atgactgttt tgttcaaggt tgcgatgcct cgattttgct 240

gaacgatacg gctacaatag tgagcgagca aagtgcacca ccaaataaca actccataag 300

aggtttggat gtgataaacc agatcaaaac agcggtggaa aatgcttgtc ctaacacagt 360

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tacttggcaa gttccattag gaagaaggga tagtttgaca gcaaataatt cccttgcagc 480

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<210> 15

<211> 283

<212> PRT

<213> Glycine max

<400> 15

Phe His Asp Cys Phe Val Gln Gly Cys Asp Gly Ser Val Leu Leu Asn
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Asn Thr Asp Thr Ile Glu Ser Glu Gln Asp Ala Leu Pro Asn Ile Asn
20 25 30

Ser Ile Arg Gly Leu Asp Val Val Asn Asp Ile Lys Thr Ala Val Glu
35 40 45

Asn Ser Cys Pro Asp Thr Val Ser Cys Ala Asp Ile Leu Ala Ile Ala
50 55 60

Ala Glu Ile Ala Ser Val Ala Gly Arg Arg Ser Gly Trp Pro Val Pro

65 70 75 80

Leu Gly Arg Arg Asp Ser Leu Thr Ala Asn Arg Thr Leu Ala Asn Gln
85 90 95

Asn Leu Pro Ala Pro Phe Phe Asn Leu Thr Gln Leu Lys Ala Ser Phe
100 105 110

Ala Val Gln Gly Leu Asn Thr Leu Asp Leu Val Thr Leu Ser Gly Gly
115 120 125

His Thr Ser Gly Arg Ala Arg Cys Ser Thr Phe Ile Asn Arg Leu Tyr
130 135 140

Asn Phe Ser Asn Thr Gly Leu Ile His Leu Asp Thr Thr Tyr Leu Glu
145 150 155 160

Val Leu Arg Ala Arg Cys Pro Gln Asn Ala Thr Gly Asp Asn Leu Thr
165 170 175

Asn Leu Asp Leu Ser Thr Pro Asp Gln Phe Asp Asn Arg Tyr Tyr Ser
180 185 190

Asn Leu Leu Gln Leu Asn Gly Leu Leu Gln Ser Asp Gln Glu Arg Phe
195 200 205

Ser Thr Pro Gly Ala Asp Thr Ile Pro Leu Ser Ile Ala Ser Ala Asn
210 215 220

Gln Asn Thr Phe Phe Ser Asn Phe Arg Val Ser Met Ile Lys Met Gly
225 230 235 240

Asn Ile Gly Val Leu Thr Gly Asp Glu Gly Glu Ile Arg Leu Gln Cys
245 250 255

Asn Phe Val Asn Gly Asp Ser Phe Gly Leu Ala Ser Val Ala Ser Lys
260 265 270

Asp Ala Lys Gln Lys Leu Val Ala Gln Ser Lys
275 280

<210> 16

<211> 355

<212> PRT

<213> Medicago sativa

<400> 16

Met Asn Ser Leu Arg Ala Val Ala Ile Ala Leu Cys Cys Ile Val Val
1 5 10 15

Val Leu Gly Gly Leu Pro Phe Ser Ser Asn Ala Gln Leu Asp Pro Ser

20 25 30

Phe Tyr Arg Asn Thr Cys Pro Asn Val Ser Ser Ile Val Arg Glu Val
35 40 45

Ile Arg Ser Val Ser Lys Lys Asp Pro Arg Met Leu Ala Ser Leu Val
50 55 60

Arg Leu His Phe His Asp Cys Phe Val Gln Gly Cys Asp Ala Ser Val
65 70 75 80

Leu Leu Asn Lys Thr Asp Thr Val Val Ser Glu Gln Asp Ala Phe Pro
85 90 95

Asn Arg Asn Ser Leu Arg Gly Leu Asp Val Val Asn Gln Ile Lys Thr
100 105 110

Ala Val Glu Lys Ala Cys Pro Asn Thr Val Ser Cys Ala Asp Ile Leu
115 120 125

Ala Leu Ser Ala Glu Leu Ser Ser Thr Leu Ala Asp Gly Pro Asp Trp
130 135 140

Lys Val Pro Leu Gly Arg Arg Asp Gly Leu Thr Ala Asn Gln Leu Leu
145 150 155 160

Ala Asn Gln Asn Leu Pro Ala Pro Phe Asn Thr Thr Asp Gln Leu Lys
165 170 175

Ala Ala Phe Ala Ala Gln Gly Leu Asp Thr Thr Asp Leu Val Ala Leu
180 185 190

Ser Gly Ala His Thr Phe Gly Arg Ala His Cys Ser Leu Phe Val Ser
195 200 205

Arg Leu Tyr Asn Phe Ser Gly Thr Gly Ser Pro Asp Pro Thr Leu Asn
210 215 220

Thr Thr Tyr Leu Gln Gln Leu Arg Thr Ile Cys Pro Asn Gly Gly Pro
225 230 235 240

Gly Thr Asn Leu Thr Asn Phe Asp Pro Thr Thr Pro Asp Lys Phe Asp
245 250 255

Lys Asn Tyr Tyr Ser Asn Leu Gln Val Lys Lys Gly Leu Leu Gln Ser
260 265 270

Asp Gln Glu Leu Phe Ser Thr Ser Gly Ser Asp Thr Ile Ser Ile Val
275 280 285

Asn Lys Phe Ala Thr Asp Gln Lys Ala Phe Phe Glu Ser Phe Arg Ala
290 295 300

Ala Met Ile Lys Met Gly Asn Ile Gly Val Leu Thr Gly Asn Gln Gly
305 310 315 320

Glu Ile Arg Lys Gln Cys Asn Phe Val Asn Ser Lys Ser Ala Glu Leu

325 330 335

Gly Leu Ile Asn Val Ala Ser Ala Asp Ser Ser Glu Glu Gly Met Val
340 345 350

Ser Ser Met
355

<210> 17

<211> 358

<212> PRT

<213> Medicago sativa

<400> 17

Met Asn Ser Leu Ala Thr Ser Met Trp Cys Val Val Leu Leu Val Val
1 5 10 15

Leu Gly Gly Leu Pro Phe Ser Ser Asp Ala Gln Leu Ser Pro Thr Phe
20 25 30

Tyr Ser Lys Thr Cys Pro Thr Val Ser Ser Ile Val Ser Asn Val Leu
35 40 45

Thr Asn Val Ser Lys Thr Asp Pro Arg Met Leu Ala Ser Leu Val Arg
50 55 60

Leu His Phe His Asp Cys Phe Val Leu Gly Cys Asp Ala Ser Val Leu
65 70 75 80

Leu Asn Asn Thr Ala Thr Ile Val Ser Glu Gln Gln Ala Phe Pro Asn
85 90 95

Asn Asn Ser Leu Arg Gly Leu Asp Val Val Asn Gln Ile Lys Leu Ala
100 105 110

Val Glu Val Pro Cys Pro Asn Thr Val Ser Cys Ala Asp Ile Leu Ala
115 120 125

Leu Ala Ala Gln Ala Ser Ser Val Leu Ala Gln Gly Pro Ser Trp Thr
130 135 140

Val Pro Leu Gly Arg Arg Asp Gly Leu Thr Ala Asn Arg Thr Leu Ala
145 150 155 160

Asn Gln Asn Leu Pro Ala Pro Phe Asn Ser Leu Asp Gln Leu Lys Ala
165 170 175

Ala Phe Thr Ala Gln Gly Leu Asn Thr Thr Asp Leu Val Ala Leu Ser
180 185 190

Gly Ala His Thr Phe Gly Arg Ala His Cys Ala Gln Phe Val Ser Arg

195 200 205

Leu Tyr Asn Phe Ser Ser Thr Gly Ser Pro Asp Pro Thr Leu Asn Thr
210 215 220

Thr Tyr Leu Gln Gln Leu Arg Thr Ile Cys Pro Asn Gly Gly Pro Gly
225 230 235 240

Thr Asn Leu Thr Asn Phe Asp Pro Thr Thr Pro Asp Lys Phe Asp Lys
245 250 255

Asn Tyr Tyr Ser Asn Leu Gln Val Lys Lys Gly Leu Leu Gln Ser Asp
260 265 270

Gln Glu Leu Phe Ser Thr Ser Gly Ala Asp Thr Ile Ser Ile Val Asn
275 280 285

Lys Phe Ser Thr Asp Gln Asn Ala Phe Phe Glu Ser Phe Lys Ala Ala
290 295 300

Met Ile Lys Met Gly Asn Ile Gly Val Leu Thr Gly Thr Lys Gly Glu
305 310 315 320

Ile Arg Lys Gln Cys Asn Phe Val Asn Phe Val Asn Ser Asn Ser Ala
325 330 335

Glu Leu Asp Leu Ala Thr Ile Ala Ser Ile Val Glu Ser Leu Glu Asp
340 345 350

Gly Ile Ala Ser Val Ile
355

<210> 18

<211> 347

<212> PRT

<213> Medicago sativa

<400> 18

Met Trp Cys Val Val Leu Leu Val Val Leu Gly Gly Leu Pro Phe Ser
1 5 10 15

Ser Asp Ala Gln Leu Ser Pro Thr Phe Tyr Ser Lys Thr Cys Pro Thr
20 25 30

Val Ser Ser Ile Val Ser Asn Val Leu Thr Asn Val Ser Lys Thr Asp
35 40 45

Pro Arg Met Leu Ala Ser Leu Val Arg Leu His Phe His Asp Cys Phe
50 55 60

Val Leu Gly Cys Asp Ala Ser Val Leu Leu Asn Asn Thr Ala Thr Ile

65 70 75 80

Val Ser Glu Gln Gln Ala Phe Pro Asn Asn Asn Ser Leu Arg Gly Leu
85 90 95

Asp Val Val Asn Gln Ile Lys Thr Ala Val Glu Ser Ala Cys Pro Asn
100 105 110

Thr Val Ser Cys Ala Asp Ile Leu Ala Leu Ala Gln Ala Ser Ser Val
115 120 125

Leu Ala Gln Gly Pro Ser Trp Thr Val Pro Leu Gly Arg Arg Asp Gly
130 135 140

Leu Thr Ala Asn Arg Thr Leu Ala Asn Gln Asn Leu Pro Ala Pro Phe
145 150 155 160

Asn Ser Leu Asp His Leu Lys Leu His Leu Thr Ala Gln Gly Leu Ile
165 170 175

Thr Pro Val Leu Val Ala Leu Ser Gly Ala His Thr Phe Gly Arg Ala
180 185 190

His Cys Ala Gln Phe Val Ser Arg Leu Tyr Asn Phe Ser Ser Thr Gly
195 200 205

Ser Pro Asp Pro Thr Leu Asn Thr Thr Tyr Leu Gln Gln Leu Arg Thr
210 215 220

Ile Cys Pro Asn Gly Gly Pro Gly Thr Asn Leu Thr Asn Phe Asp Pro
225 230 235 240

Thr Thr Pro Asp Lys Phe Asp Lys Asn Tyr Tyr Ser Asn Leu Gln Val
245 250 255

Lys Lys Gly Leu Leu Gln Ser Asp Gln Glu Leu Phe Ser Thr Ser Gly
260 265 270

Ala Asp Thr Ile Ser Ile Val Asp Lys Phe Ser Thr Asp Gln Asn Ala
275 280 285

Phe Phe Glu Ser Phe Lys Ala Ala Met Ile Lys Met Gly Asn Ile Gly
290 295 300

Val Leu Thr Gly Thr Lys Gly Glu Ile Arg Lys Gln Cys Asn Phe Val
305 310 315 320

Asn Ser Asn Ser Ala Glu Leu Asp Leu Ala Thr Ile Ala Ser Ile Val
325 330 335

Glu Ser Leu Glu Asp Gly Ile Ala Ser Val Ile
340 345

<210> 19

<211> 351

<212> PRT

<213> Medicago sativa

<400> 19

Met Leu Gly Leu Ser Ala Thr Ala Phe Cys Cys Met Val Phe Val Leu
1 5 10 15

Ile Gly Gly Val Pro Phe Ser Asn Ala Gln Leu Asp Pro Ser Phe Tyr
20 25 30

Asn Ser Thr Cys Ser Asn Leu Asp Ser Ile Val Arg Gly Val Leu Thr
35 40 45

Asn Val Ser Gln Ser Asp Pro Arg Met Leu Gly Ser Leu Ile Arg Leu
50 55 60

His Phe His Asp Cys Phe Val Gln Gly Cys Asp Ala Ser Ile Leu Leu
65 70 75 80

Asn Asp Thr Ala Thr Ile Val Ser Glu Gln Ser Ala Pro Pro Asn Asn
85 90 95

Asn Ser Ile Arg Gly Leu Asp Val Ile Asn Gln Ile Lys Thr Ala Val
100 105 110

Glu Asn Ala Cys Pro Asn Thr Val Ser Cys Ala Asp Ile Leu Ala Leu
115 120 125

Ser Ala Glu Ile Ser Ser Asp Leu Ala Asn Gly Pro Thr Trp Gln Val
130 135 140

Pro Leu Gly Arg Arg Asp Ser Leu Thr Ala Asn Asn Ser Leu Ala Ala
145 150 155 160

Gln Asn Leu Pro Ala Pro Thr Phe Asn Leu Thr Arg Leu Lys Ser Asn
165 170 175

Phe Asp Asn Gln Asn Leu Ser Thr Thr Asp Leu Val Ala Leu Ser Gly
180 185 190

Gly His Thr Ile Gly Arg Gly Gln Cys Arg Phe Phe Val Asp Arg Leu
195 200 205

Tyr Asn Phe Ser Asn Thr Gly Asn Pro Asp Ser Thr Leu Asn Thr Thr
210 215 220

Tyr Leu Gln Thr Leu Gln Ala Ile Cys Pro Asn Gly Gly Pro Gly Thr
225 230 235 240

Asn Leu Thr Asp Leu Asp Pro Thr Thr Pro Asp Thr Phe Asp Ser Asn
245 250 255

Tyr Tyr Ser Asn Leu Gln Val Gly Lys Gly Leu Phe Gln Ser Asp Gln

260 265 270

Glu Leu Phe Ser Arg Asn Gly Ser Asp Thr Ile Ser Ile Val Asn Ser
275 280 285

Phe Ala Asn Asn Gln Thr Leu Phe Phe Glu Asn Phe Val Ala Ser Met
290 295 300

Ile Lys Met Gly Asn Ile Gly Val Leu Thr Gly Ser Gln Gly Glu Ile
305 310 315 320

Arg Thr Gln Cys Asn Ala Val Asn Gly Asn Ser Ser Gly Leu Ala Thr
325 330 335

Val Val Thr Lys Glu Ser Ser Glu Asp Gly Met Ala Ser Ser Phe
340 345 350

<210> 20

<211> 22

<212> DNA

<213> Medicago sativa

<400> 20

taaaatcata tcagcttact cc 22